Updated EA/FONSI Log Number: 10-38

Arvin Edison Water Storage District and Metropolitan Water District
2010-2011 Water Exchange Project

South-Central California Area Office

Date: August 27, 2010

To:				
	Natural Resources Specialist	SCC 411	8/31/10	C Siek
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	Natural Resources Specialist	SCC 416	9/2/10	M Inthavong

Cost Authority Number: **A1R-1752-9652-220-03-8-1**

From: Michael Inthavong

Subject: Review and signing of FONSI

Please review the attached FONSI/EA and route it according to the order on the list. When your review is finished, please date and initial this routing document, and sign on the first page of the FONSI if your name is listed. However, if you have comments or questions please contact the Environmental Team or the proponent of the action. When everyone has signed the FONSI, please return it to Michael Inthavong.

Thank you.

Ready for Central Files 9/2/2010

Copies to: MP-3730 (1 Copy)
Project Proponent: R Ballew – SCC-414

RECLAMATION
Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT

Arvin-Edison Water Storage District and Metropolitan Water District 2010-2011 Water Exchange Project

FONSI-10-38

Recommended by:

Michael Inthavong
Natural Resources Specialist
South-Central California Area Office

Date: 8/30/2010

Concurred by:

Chuck Siek
Supervisory Natural Resources Specialist
South-Central California Area Office

Date: 9/1/10

Concurred by:

David Woolley

Date: 9-1-10

acting Chief, Resources Management Division
South-Central California Area Office

Approved by:

Laura Myers
Deputy Area Manager
South-Central California Area Office

Date: 9/1/10

U.S. Department of the Interior
Bureau of Reclamation
South-Central California Area Office

August 2010

Introduction

In accordance with section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, the South-Central California Area Office of the Bureau of Reclamation (Reclamation), has determined that the approval to exchange Arvin-Edison Water Storage District's (AEWSD) Central Valley Project (CVP) supplies with Metropolitan Water District's (MWD) State Water Project (SWP) supply is not a major Federal action that would significantly affect the quality of the human environment and an Environmental Impact Statement is not required. This Finding of No Significant Impact (FONSI) is supported by Reclamation's Final Environmental Assessment (EA) number EA-10-38, *Arvin-Edison Water Storage District and Metropolitan Water District 2010-2011 Water Exchange Project*, and is hereby incorporated by reference.

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA during a 15-day public comment period from August 12 through August 26, 2010. No comments were received.

Background

In December 1997, AEWSD entered into a long-term Water Management Program (Program) with MWD. Under the Program, up to 350,000 acre-feet (AF) of MWD's SWP supply could be banked within AEWSD's groundwater bank at any one time. Upon request, AEWSD would return MWD's banked SWP water during certain dry hydrological years when MWD needs to supplement its water supply. AEWSD has historically pumped MWD's banked SWP supplies from their groundwater bank and delivered the water back to MWD. In anticipation of the State Water Resources Control Board's (SWRCB) approval to temporarily consolidate the SWP and CVP places-of-use and points-of-diversion, AEWSD proposes to send up to 40,000 AF total of their 2010 and/or 2011 CVP water supplies to MWD in lieu of extracting MWD's previously banked SWP water within AEWSD's groundwater bank as originally agreed and analyzed under the Program. As a result, a like-amount of MWD's banked SWP water will change in ownership over to AEWSD, thus completing a "bucket for bucket" exchange.

The exchange will utilize existing facilities including the CVP, SWP, Cross Valley Canal (CVC), and/or AEWSD's facilities. AEWSD's CVP supply from Millerton Lake will be conveyed down the Friant-Kern Canal (FKC) towards the terminus and diverted into AEWSD's facilities via AEWSD's FKC turnout at milepost 151.80 or AEWSD's intake canal off the CVC. Once in the CVC or AEWSD's facilities, the water will be introduced into the California Aqueduct at existing diversion points and ultimately delivered to MWD. At their discretion, AEWSD will extract the water obtained through the exchange using existing facilities to satisfy the irrigation needs of landowners within their district.

The exchange will be completed by February 28, 2012 (end of 2011 contract year); however, will be limited to and will only occur during the timeframe for which a temporary consolidated place-of-use and point-of-diversion is approved by the SWRCB. It is anticipated that the SWRCB will approve the temporary consolidation for one year.

Findings

Water Resources

The Proposed Action is merely an extension of the Program and will not significantly impact the Program's ability to continue operating as has historically occurred.

The Proposed Action will not require the San Joaquin River Restoration Program to increase, decrease, and/or change the timing of flows released from Friant Dam nor will it significantly impact interim flows and recirculation projects.

Both AEWSD and MWD will not experience a net gain or loss in their respective water supplies under the Proposed Action since the exchange will be "bucket for bucket". AEWSD will still have sufficient water resources to provide to their landowners for agricultural purposes and MWD will use this water to supplement their reduced SWP supplies in order to meet its customers' demand for municipal and industrial use. There will be no significant impacts to AEWSD and MWD's respective water supplies.

The Proposed Action will not increase groundwater pumping from what has historically occurred within the Kern County Subbasin by AEWSD. Aside from the 10 percent loss factor left in the groundwater bank as part of the Program, there will be no net gain or loss to groundwater levels underlying AEWSD from implementing the Proposed Action. There will be no measurable changes to the groundwater basin underlying MWD since the water will be used for municipal and industrial purposes, and little, if any, water will seep into the groundwater basin. There will be no significant impacts to groundwater resources.

The CVC, FKC, and California Aqueduct will not be significantly impacted as the Proposed Action must be scheduled and approved by Reclamation, Kern County Water Agency (KCWA), and DWR so as not to hinder these agencies respective obligations to deliver water to their contractors and other obligations. In continuance of commitments from the Program, existing water quality guidelines will be followed by both AEWSD and KCWA when introducing water into the California Aqueduct to insure that water quality will not be significantly impacted.

Land Use

The Proposed Action will utilize existing facilities to convey waters involved and will not require the need to construct new facilities or modifications to existing facilities that will result in ground disturbance. AEWSD will not experience a decrease in water supply that will impact existing irrigated farmlands within its service area, nor will the banked water be used to cultivate native or fallowed land for three or more years. MWD intends to use the exchanged water to supplement its SWP supplies for existing municipal and industrial purposes within its service area, and will not contribute to any potential expansion within the area. Therefore, the Proposed Action will not have adverse impacts on existing land use.

Biological Resources

Most of the habitat types required by species protected by the Endangered Species Act do not occur in the project area. The Proposed Action will not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action also will not change the land

use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the Migratory Bird Treaty Act. Since no natural stream courses or additional pumping will occur, there will be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat will be affected. There will be no significant impacts to biological resources.

Cultural Resources

All exchanges will occur through existing facilities and water will be provided within existing service area boundaries to areas that currently use water. The Proposed Action will not result in modification of any existing facilities, construction of new facilities, change in land use, or growth. The Proposed Action has no potential to cause effect to historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1); therefore, will not significantly impact cultural resources.

Indian Trust Assets (ITA)

The exchange between AEWSD and MWD will not involve any construction on lands or impact water, hunting, and fishing rights associated with the nearest known ITA. Therefore, the Proposed Action does not have the potential to impact ITA.

Socioeconomic Resources

The Proposed Action will result in less energy use with virtually no changes in flow path from what was analyzed under the Program. This will save AEWSD the energy and costs associated with otherwise pumping and returning groundwater, in addition to saving expenses associated with operating their recharge basins. There will be minor, short-term beneficial impacts to socioeconomics.

Environmental Justice

The Proposed Action will not cause dislocation, changes in employment, or increase flood, drought, or disease within the affected environment. Water so delivered under the Proposed Action will primarily serve to reduce energy use with attendant cost savings and will also allow AEWSD to increase their groundwater banking account to meet current and future summertime peaking demands, therefore securing agricultural jobs in the region. The Proposed Action will not disproportionately impact economically disadvantaged or minority populations.

Global Climate

Green house gases (GHG) generated by the Proposed Action are expected to be extremely small compared to sources contributing to potential climate change since the exchange of water will be conveyed mostly via gravity and little, if any, additional pumping from electric motors will be required. While any increase in GHG emissions will add to the global inventory of gases that will contribute to global climate change, the Proposed Action will result minimal to no increases in GHG emissions and a net increase in GHG emissions among the pool of GHG will not be detectable. There will be no significant impacts to global climate.

Cumulative Impacts

Similar to an exchange approved in 2009, the Proposed Action is an extension of the Program between AEWSD and MWD. Both the 2009 exchange and the Proposed Action are/were temporary actions, which allowed AEWSD to provide for the timely delivery of surface water to MWD in order to fulfill its obligation under the Program in-lieu of pumping and returning groundwater to MWD. Since the Proposed Action and the 2009 exchange are extensions of the Program, the Program could then be used to determine potential cumulative impacts. The Program itself is a long-term action that was determined to not have significant impacts on environmental resources.

There will be no net gain or loss to either district's water supplies since the exchange will be "bucket for bucket". Groundwater pumping will not increase or decrease as a result of the Proposed Action. The Program slightly benefits the groundwater levels underlying AEWSD since 10 percent of MWD's SWP supplies banked are left in the groundwater subbasin. Utilization of conveyance facilities involved will require coordination with the appropriate overseeing agency to insure that the scheduling of the Proposed Action will not hinder the normal operations of those facilities. The same water quality monitoring protocols will be followed in continuance of the Program to ensure that water quality in the California Aqueduct is not adversely impacted. There will be no significant cumulative impacts to water resources.

The Proposed Action will have no impact on land use, biological resources, cultural resources, ITA, and environmental justice; therefore, will not contribute to significant cumulative impacts on these resource areas when taking into consideration other past, existing, and reasonably foreseeable future actions. Slight beneficial impacts to socioeconomics will be short-term and within the historical variations, and therefore will not contribute to significant cumulative impacts.

GHG impacts are considered to be cumulative impacts. The Proposed Action, when added to other existing and future actions, will not contribute to significant cumulative impacts to global climate change owing to the threshold magnitude of GHG emissions requirement for reporting.

The exchange will only occur within the timeframe specified for the consolidation for the CVP and SWP places-of-use and is not precedent setting. The Proposed Action, when added to other actions, do not contribute to adverse increases or decreases in environmental conditions. Overall, there will be no significant cumulative impacts caused by the Proposed Action.

RECLAMATION

Managing Water in the West

Final Environmental Assessment

Arvin-Edison Water Storage District and Metropolitan Water District 2010-2011 Water Exchange Project

EA-10-38

U.S. Department of the Interior
Bureau of Reclamation
Mid Pacific Region
South-Central California Area Office
Fresno, California

August 2010

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Table of Contents

List of Acronyms and Abbreviations

215 Water	Supply of non-storable flood flows behind Friant Dam which would be furnished if and only when available as determined by Reclamation
AEWSD	Arvin-Edison Water Storage District
AF	acre-feet
APE	area of potential effects
cfs	cubic-feet per second
Class 1 water	Supply of CVP water stored at Friant Dam which would be available for delivery from the Friant-Kern and Madera Canals as a dependable water supply during each irrigation season
Class 2 water	Supply of non-storable CVP water which becomes available in addition to the Class 1 supply, and because of its uncertainty as to availability and time occurrence, would not be dependable in character and would be furnished only if and when available as determined by Reclamation
CVC	Cross Valley Canal
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
DWR	Department of Water Resources
EA	environmental assessment
EA/IS	Environmental Assessment/Initial Study
ESA	Endangered Species Act
FKC	Friant-Kern Canal
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination Act
GHG	green house gases
ITA	Indian Trust Assets
KCWA	Kern County Water Agency
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MWD	Metropolitan Water District
National Register	Nation Register of Historic Places
ND	Negative Declaration
NHPA	National Historic Preservation Act
Program	Water Management Program between AEWSD and MWD
Reclamation	Bureau of Reclamation
SJRRP	San Joaquin River Restoration Program
SLR	San Luis Reservoir
SWP	State Water Project
SWRCB	State Water Resources Control Board
Table A	The maximum amount of SWP water to be made available to the agency in any one year under this contract shall be that specified in Table A of this contract and in said table designated as the Agencies Maximum Annual Entitlement.
USFWS	U.S. Fish and Wildlife Service

Section 1 Purpose and Need for Action

1.1 Background

In December 1997, Arvin-Edison Water Storage District (AEWSD) entered into a long-term Water Management Program (Program) with Metropolitan Water District (MWD). Under the Program, up to 350,000 acre-feet (AF), after a 10 percent loss is applied, of MWD's State Water Project (SWP) supply currently exceeding their service area demands could be banked within AEWSD's groundwater bank at any one time. Upon request, AEWSD would return MWD's banked SWP water during certain dry hydrological years when MWD needs to supplement its water supply. An Initial Study was first prepared by AEWSD to analyze the potential impacts of the Program and a Negative Declaration (ND) was approved by AEWSD and MWD in July 1996. In addition, MWD prepared an Addendum to the ND to address the execution of a point of delivery and turn-in agreement for the Program in December 2002. The Initial Study/ND and Addendum are hereby incorporated by reference (Program 1996 and Addendum 2002).

Currently, California is experiencing unprecedented water management challenges during a fourth consecutive year of drought. Both the SWP and Central Valley Project (CVP) are forecasting low storage conditions in all major reservoirs. In response, California Governor Arnold Schwarzenegger proclaimed in February 2009 a state of emergency and ordered immediate action to manage the crisis. In the proclamation, the Governor used his authority to direct all state government agencies to utilize their resources, implement a state emergency plan and provide assistance for people, communities and businesses impacted by the drought. The proclamation, among other things, directed the Department of Water Resources (DWR) to expedite approvals for water transfers and related efforts by water users and suppliers, and directed the State Water Resources Control Board (SWRCB) to expedite the processing and consideration of the request by DWR to temporarily consolidate the places-of-use and points-of-diversion of the SWP and CVP, which would allow flexibility in facilitating water transfers and exchanges among the two projects. The SWRCB approved a temporary one-year consolidation in 2009, and it is anticipated that another one-year consolidation would be approved in 2010.

1.2 Purpose and Need

In June 2010, DWR increased the SWP Table A declaration to 50 percent allocation, which DWR expects to be the final 2010 water allocation. This has resulted in a large reduction of available SWP water supplies to MWD, leaving the district in a position of needing to call upon its banked supplies previously stored in AEWSD's groundwater bank under the Program. MWD needs additional water to supplement their SWP supplies to meet its service area demands.

Under the Program, AEWSD has historically pumped MWD's banked SWP supplies from their groundwater bank and delivered the water back to MWD. This return mechanism has associated energy use, and operation and pumping costs. In anticipation of the SWRCB's approval to temporarily consolidate the SWP and CVP places-of-use and points-of-diversion, AEWSD desires to send a portion of their CVP water to MWD in exchange for MWD's banked SWP in AEWSD's groundwater bank. AEWSD needs the Bureau of Reclamation's (Reclamation)

approval in order to exchange CVP water for SWP water. The purpose of the Proposed Action is to provide for the expeditious and timely delivery of surface water supplies available to AEWSD in lieu of groundwater it otherwise would have pumped and delivered to MWD in fulfilling its return water obligations to MWD under the Program. In addition, the Proposed Action would serve to reduce energy use, pumping and operation costs, and provide overall water management flexibility to AEWSD.

1.3 Scope

This Environmental Assessment (EA) has been prepared to examine the potential direct and indirect impacts to the affected environment associated with the Proposed Action and No Action Alternative. Up to 40,000 AF total of AEWSD's 2010 and/or 2011 varied CVP supplies (Class 1, Class 2, 215 Water, and/or recaptured interim flows) is proposed to be exchanged with MWD for a like-amount of MWD's banked SWP supplies currently stored within AEWSD's groundwater bank.

The Proposed Action would utilize existing facilities including the CVP, SWP, Cross Valley Canal (CVC), and/or AEWSD's intermediate facilities. The areas involved and thus potentially impacted by the Proposed Action are the lands within the CVP service area boundary of AEWSD and the lands within the SWP service area boundary of MWD. Refer to Figure 1 and Appendix D for an overview showing the districts and conveyance facilities involved.

The Proposed Action would be completed by February 28, 2012 (end of 2011 contract year); however, would be limited to and would only occur during the timeframe for which a temporary consolidated place-of-use and point-of-diversion is approved by the SWRCB. It is anticipated that the SWRCB would approve a temporary one-year consolidation in 2010.

1.4 Related Environmental Documents

In June 2009, Reclamation prepared an EA to approve the delivery of up to 40,000 AF per year of AEWSD's CVP supplies to MWD in-lieu of pumping and returning a like-amount of MWD's previously banked SWP supplies within AEWSD's groundwater bank under the Program. A Finding of No Significant Impact (FONSI) was signed in December 2009 to approve the exchange; both EA and FONSI are hereby incorporated by reference (Reclamation 2009). The Proposed Action is similar to the exchange approved in 2009, which was made possible due to the temporary consolidation of the CVP and SWP places-of-use and points-of-diversion from June 2009 to October 2010.

As part of the San Joaquin River Restoration Program (SJRRP), Reclamation and DWR prepared a joint state and federal documented that described the direct, indirect, and cumulative effects of releasing interim flows from Friant Dam down the San Joaquin River from October 1, 2009 to September 30, 2010 in order to meet requirements under the San Joaquin River Restoration Settlement. A Final EA and Initial Study (EA/IS) was completed and a FONSI/Mitigated Negative Declaration (MND) was signed on September 25, 2009. The EA/IS described the potential locations and mechanisms for recapturing the interim flows within the San Joaquin River from Friant Dam to the confluence of the Merced River, and in the Sacramento-San

Joaquin River Delta. Dependent on the year type, the EA/IS identified that the water available for recapture would range between 0 and 384,000 AF, and would be subject to: Mendota and Sack Dam operations; any agreements with landowners or other federal, state, and local agencies; special-status species requirements; and potential seepage. To avoid/reduce water supply impacts to Friant Division CVP contractors, the interim flows are recaptured and stored in San Luis Reservoir (SLR) for subsequent recirculation back to the Friant Division CVP contractors. The EA/IS anticipated that up to 60,000 AF of recaptured 2010 interim flows could be available and stored in SLR. The EA/IS and FONSI/MND are hereby incorporated by reference (Reclamation 2009a).

In order to return the 2010 recaptured interim flows stored in SLR back to the Friant Division CVP contractors, Reclamation prepared an EA to analyze potential transfer and exchange scenarios to make up to 60,000 AF available from Millerton Lake as Class 2 CVP water supplies. A Final EA was completed and a FONSI was signed on July 22, 2010, and both are hereby incorporated by reference (Reclamation 2010a).

1.5 Reclamation's Legal and Statutory Authorities and Jurisdiction Relevant to the Proposed Federal Action

Several Federal laws, permits, licenses and policy requirements have directed, limited or guided the National Environmental Policy Act analysis and decision-making process of this EA and include the following as amended, updated, and/or superseded:

- Title XXXIV Central Valley Project Improvement Act (CVPIA), October 30, 1992, Section 3405(a);
- Reclamation Reform Act, October 12, 1982; and
- Reclamation and United States Fish and Wildlife Service (USFWS) Regional, Final Administrative Proposal on Water Transfers April 16, 1998.

1.6 Potential Issues

Potentially affected resources and cumulative impacts in the project vicinity include: water resources, land use, biological resources, cultural resources, Indian Trust Assets (ITA), socioeconomic resources, environmental justice, and global climate.

The following was eliminated from detailed environmental analysis due to the reasons below:

- Air Quality
    - Comprehensive evaluation of air quality issues were eliminated from detailed environmental analysis because there would be no construction or ground disturbing activities that could lead to the introduction of fugitive dust and exhaust emissions into the Proposed Action areas' air district. Water movement involved with the Proposed Action would be gravity fed through the conveyance facilities and not require the use of any gas and/or diesel pumps that could release emissions to impact air quality.


Figure 1. Project Overview Map
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
0
25
50
75
100
Miles
San Luis Reservoir
Millerton Lake
California Aqueduct
Friant-Kern Canal
Cross Valley Canal
ARVIN-EDISON W.S.D.
California Aqueduct
Metropolitan Water District
N
W
E
S
Friant-Kern Canal
Cross Valley/Friant-Kern Canals Intertie
Intake Canal/CVC Intertie
Cross Valley Canal
AEWSD Intake Canal
Cross Valley Canal
Kern River
Pacific Ocean

Section 2 Alternatives Including the Proposed Action

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve the exchange of AEWSD's CVP water for MWD's SWP water. AEWSD would still be able to pump MWD's previously stored SWP water within AEWSD's groundwater bank and deliver it to MWD via the California Aqueduct as originally arranged and analyzed under the ND for the Program.

2.2 Proposed Action

Reclamation proposes to approve AEWSD's request to exchange a portion of its CVP water supply for a like-amount of MWD's SWP supply. More specifically, AEWSD would exchange up to 40,000 AF total of its 2010 and/or 2011 Friant Division CVP Class 1, Class 2, and/or 215 Water supplies (to the extent Class 2 and 215 Water is declared by Reclamation and is allocated to AEWSD) from Millerton Lake for a like-amount of MWD's SWP supply already stored with AEWSD's groundwater bank (the exchange would be "bucket-for-bucket"). AEWSD's Class 2 supply would also include those supplies made available through transfers/exchanges as analyzed in the 2010 EA for recirculation of recaptured interim flows.

AEWSD's CVP supplies from Millerton Lake would be conveyed down the Friant-Kern Canal (FKC) towards its terminus and diverted into AEWSD's facilities via AEWSD's FKC turnout at milepost 151.80 or AEWSD's intake canal off the CVC. Once in the CVC or AEWSD's facilities, the water would be introduced into the California Aqueduct at existing diversion points and ultimately delivered to MWD. Refer to Figures 1 and 2 for an overview of possible facilities involved with the Proposed Action. In order to complete the exchange, the banked SWP water that would have been pumped and returned to MWD would change in ownership from MWD to AEWSD and remain within AEWSD's groundwater bank.

The Proposed Action is contingent upon approval by the SWRCB to temporarily consolidate the SWP and CVP places-of-use and points-of-diversion, and would only occur during the timeframe for which the consolidation is approved.

In addition, the Proposed Action would include the following commitments:

- no native or untilled land (fallow for 3 consecutive years or more) would be cultivated with the water involved in these actions;
- no new construction or modification of existing facilities would be required;
- as noted previously, successful petition to temporarily consolidate the CVP and SWP places-of-use and points-of-diversion must be approved by the SWRCB;
- exchange involving Class 2 water made available in Millerton Lake as a result of SJJRP interim flows and recirculation projects would be coordinated with the oversight

committee for the SJRRP so as not to adversely impact the program's directives and objectives, and projects;

- exchange involving CVP and SWP facilities, and the CVC would be required to obtain the applicable approval/permission so as not to hinder the respective normal operations and maintenance of the facilities;
- exchange involving CVP and SWP facilities, and the CVC would be required to schedule accordingly with Reclamation, DWR and/or the Kern County Water Agency (KCWA) so as not to hinder their respective obligations to deliver water to contractors, wildlife refuges, and due to regulatory requirements;
- the banked non-project water exchanged in ownership to AEWSD under the Proposed Action would be treated as CVP water and would be subject to the acreage limitation provisions of the Reclamation Reform Act of 1982;
- in continuance of commitments from the Program, existing Aqueduct Pump-in Facilitation Group guidelines would followed by both AEWSD and KCWA when introducing water into the California Aqueduct to insure that water quality would not be adversely impacted; and
- exchange involving CVP and SWP water cannot alter the flow regime of natural water bodies such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to not have a detrimental effect on fish or wildlife, or their habitats.

Section 3 Affected Environment and Environmental Consequences

3.1 Water Resources

3.1.1 Affected Environment

3.1.1.1 AEWSD/MWD Water Management Program

Under the Program, AEWSD agreed that MWD would be able to deliver a minimum of 277,778 AF (which equates to approximately 250,000 AF after a 10 percent loss factor is applied) to AEWSD for banking. It was also anticipated that MWD would cycle water through the Program, and at AEWSD's discretion, MWD would be able to store up to 388,889 AF (which equates to approximately 350,000 AF after a 10 percent loss factor is applied) at any one time in AEWSD's groundwater bank. In order to facilitate the Program, AEWSD constructed facilities including 500 acres of new spreading works, 15 new groundwater wells, and a 4.5-mile bi-directional pipeline connecting the terminus of AEWSD's South Canal with the California Aqueduct. These new facilities could be used in conjunction with AEWSD's existing facilities and distribution system to manage the Program.

Since 1997, MWD has delivered approximately 322,000 AF of its SWP water supplies to AEWSD to be banked under the Program. Of this amount, roughly 290,000 AF (after 10 percent loss factor) were stored in the groundwater basin underlying AEWSD on MWD's behalf. To date, AEWSD has returned approximately 250,000 AF to MWD, resulting in a remaining balance of approximately 40,000 AF (refer to Appendix C for Program delivery/return schedule). MWD's supplies were primarily conveyed to AEWSD via the California Aqueduct, the CVC, AEWSD's Intake Canal, Forrest Frick Pumping Plant, and AEWSD's North and South Canals. In addition, limited amounts of MWD's SWP water have been delivered to AEWSD using the more cost effective intertie between the California Aqueduct and AEWSD's South Canal; however, deliveries through this intertie are currently limited by the capacity of the South Canal, daily deliveries to water users along the system, and well field recovery capacity. AEWSD has previously returned MWD's banked water to MWD by a combination of SWP water exchanges, delivery of CVP supplies, and by extracting banked groundwater and delivering it directly to the California Aqueduct through the South Canal/Aqueduct intertie.

The Program has operated successfully for nearly 13 years resulting in benefits for both AEWSD and MWD. For AEWSD, the Program has generated revenue for new infrastructure to manage its water supplies, increased groundwater levels, and increased drought year supplies. In addition, improved conjunctive use operations and in-lieu banking have also allowed AEWSD's farmers to utilize surface supplies instead of groundwater supplies at times when MWD banks water. AEWSD has benefitted from enhanced recharge capabilities resulting from the facilities that were constructed as part of the Program as well as from higher groundwater levels resulting in lesser overall groundwater pumping energy use and costs. For MWD, the Program has provided an opportunity to convert its surplus wet year SWP supplies into a firm dry year supply and to improve water quality in the California Aqueduct when AEWSD returns high-quality groundwater to MWD.

3.1.1.2 San Joaquin River Restoration Program

The SJRRP is a comprehensive, long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence of Merced River in order to restore a self-sustaining Chinook salmon fishery in the river, while reducing/avoiding adverse water supply impacts to Friant Division CVP contractors. The SJRRP is the program that implements both the San Joaquin River Restoration Settlement (a settlement that resulted from legal action) and the San Joaquin River Restoration Settlement Act (the law that directs federal entity and federal funding actions relative to the settlement). Reclamation initiated the SJRRP in October 2009 with the first interim flows project, which has carried over to 2010. Plans are underway to start the second phase of interim flows. To reduce/avoid water supply impacts to Friant Division CVP contractors, the interim flows have/would be recaptured and stored in SLR for return to the Friant Division CVP contractors. Reclamation has since determined that the amount of water recaptured in SLR and recirculated back to Millerton Lake is approximately 40,000 AF.

3.1.1.3 Participating Water Districts

Arvin-Edison Water Storage District AEWSD has an annual contract entitlement with Reclamation for 40,000 AF of Class 1 and 311,675 AF of Class 2 Friant Division CVP supplies. The Class 2 supply comprises a large fraction of their contract allocation; however, this supply is variable. The district manages this supply by using an underlying groundwater reservoir to regulate water availability and to stabilize water reliability by percolating water through four spreading basins. AEWSD takes Friant CVP water from their Intake Canal located at the terminus of the FKC and serves landowners within its district through 45 miles of lined canals and 170 miles of pipeline.

AEWSD has historically made available a portion of its Friant Division CVP water supply to other CVP contractors located on the eastside of the San Joaquin Valley in exchange for their CVP supplies from northern California, diverted and wheeled through the California Aqueduct for ultimate delivery to AEWSD. Due to a decrease in supply reliability, cost increases, and water quality concerns, several of these exchanges are no longer feasible. As a result, it has been necessary for AEWSD to identify and implement other measures to manage its highly variable CVP water supplies.

AEWSD could have up to 8,827 AF made available as Class 2 supplies from Millerton Lake through exchange/transfer agreements analyzed under the 2010 EA for recirculation of recaptured interim flows.

Metropolitan Water District

MWD was created in 1928 under an enabling act of the California State Legislature to provide supplemental water to cities and counties in the Southern California coastal plain. This supplemental water is delivered to MWD's twenty six member agencies through a regional network of canals, pipelines, reservoirs, treatment plants and related facilities. In the late 1990's, MWD developed an Integrated Resources Plan which predicted significant water supply deficits for its service area and also outline the efforts needed on several fronts to avoid significant water shortages, especially in dry years. This plan called for a mix of water resources derived from conservation, reclamation, groundwater conjunctive-use and water transfers to ensure adequate system flexibility to protect public safety, particularly during droughts. The plan specifically cites a need for diversification of MWD's source of supply including accessing transfers,

exchanges and groundwater banking programs involving Central Valley water districts. MWD uses a variety of water supplies to meet the municipal and industrial water demands of its customers. Including the SWP, all sources of water supplies are under pressure due to environmental restrictions and continuing demands.

3.1.1.4 Groundwater Resources

Tulare Lake Hydrologic Region The Tulare Lake Hydrologic Region covers approximately 10.9 million acres (17,000 square miles) and includes all of Kings and Tulare Counties and most of Fresno and Kern Counties. The extensive use of groundwater has historically caused subsidence of the land surface primarily along the west side and south end of the San Joaquin Valley. Groundwater levels were generally at their lowest levels in the late 1960s, prior to importation of surface water. Water levels gradually increased to a maximum in about 1987-88 and falling briefly during the 1976-77 drought. Water levels began dropping again during the 1987-92 drought, with water levels showing the effects until 1994. Through a series of wet years after the drought, 1998 water levels recovered nearly to 1987-88 levels (DWR 2003).

AEWSD is located within the Kern County Subbasin of the Tulare Lake Hydrologic Region. In addition to adopting a groundwater management plan, AEWSD has successfully operated a conjunctive use program in order to balance and provide sufficient water supplies to their customers. As mentioned earlier, AEWSD operates approximately 500 acres of spreading ponds including the Sycamore, Tejon, and North Canal Spreading Works. The Program itself is a groundwater management plan. Water quality within the subbasin contains primarily calcium bicarbonate waters in the shallow zones, increasing in sodium with depth. While the local groundwater in AEWSD is of good quality, it is generally higher in total dissolved solids, nitrates, boron, and other constituents than that from the FKC (Program 1996).

South Coast Hydrologic Region The South Coast Hydrologic Region covers approximately 6.78 million acres (10,600 square miles) of the southern California watershed that drains to the Pacific Ocean. The region underlies all of Orange County, most of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, and Ventura Counties, and a amount of Kern and Santa Barbara Counties. The majority of MWD is located within the South Coast Hydrologic Region. Groundwater provides about 23 percent of water demand in normal years and about 29 percent in drought years. Conjunctive use of surface water and groundwater is a long-standing practice in the region. Groundwater quality varies, but is generally of calcium sulfate, calcium bicarbonate with local impairments of excess nitrate, sulfate, and volatile organic compounds (DWR 2003).

3.1.1.5 Conveyance Facilities

California Aqueduct/San Luis Canal The California Aqueduct/San Luis Canal is a joint-use facility and are a part of the SWP and CVP, respectively. The San Luis Canal is the Federally-built and operated section of the California Aqueduct and extends 102.5 miles from O'Neill Forebay in a southeasterly direction to a point west of Kettleman City. At this point, the facility becomes the State's California Aqueduct; however, the California Aqueduct actually begins at the Banks Pumping Plant where the canal conveys water pumped from the Sacramento-San Joaquin River Delta directly into O'Neill Forebay.

Cross Valley Canal The CVC, a locally-financed facility completed in 1975, extends from the California Aqueduct near Tupman to Bakersfield. It consists of four reaches which have capacities ranging from 890 cubic-feet per second (cfs) through the first two pumping plants to 342 cfs in the unlined extension near Bakersfield. The CVC is a joint-use facility operated by the KCWA that could convey water from the CVC to the Kern Water Bank, California Aqueduct, the City of Bakersfield, the Berrenda Mesa Property, the Kern River channel, the Pioneer Banking Project, various member units of KCWA and other districts who have access to the CVC.

Friant-Kern Canal The FKC carries water over 151.8 miles in a southerly direction from Friant Dam to its terminus at the Kern River, four miles west of Bakersfield. The FKC has an initial capacity of 5,000 cfs that gradually decreases to 2,000 cfs at its terminus in the Kern River (Reclamation 2010). The water conveyed in the FKC is from the San Joaquin River and is considered to be of good quality because it originates from snow melt from the Sierra Nevada. The water is used for municipal and industrial, and agricultural purposes in Fresno, Tulare, and Kern Counties. The FKC is a part of the CVP, which annually delivers about seven million AF of water for agricultural, urban, and wildlife use.

3.1.2 Environmental Consequences

3.1.2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve the proposed exchange. AEWSD would retain their Friant Division CVP supplies and recaptured interim flows stored in SLR water, and use them as allowed under their contract to meet in-district irrigation demands or apply the water to spreading works for groundwater recharge. As a result, AEWSD would fulfill its obligation to return water under the Program by pumping previously banked SWP supplies for delivery to MWD. MWD would use this water to satisfy their customers' needs.

There would be no additional impacts to any of the conveyance facilities and water resources listed in the affected environment from what was already analyzed under the Program. There would be no impacts to the SJRRP, its projects, and objectives.

3.1.2.2 Proposed Action

The Proposed Action would provide supplemental water supplies to MWD in 2010 and 2011, and is merely an extension of the Program. Instead of pumping and returning banked SWP back to MWD, AEWSD would instead deliver their CVP supplies to fulfill its obligation under the Program. MWD would not experience a net gain or loss in water supply as compared to the Program arrangement, nor would it hinder the Program's ability to continue operating as has historically occurred.

Exchange involving Class 2 water made available from Millerton Lake as a result of SJJRP interim flows and recirculation projects would be coordinated with the oversight committee for the SJRRP so as not to adversely impact the program's directives and objectives, and projects. The Proposed Action would not require the SJRRP to increase, decrease, and/or change the timing of flows released from Friant Dam.

Both AEWSD and MWD would not experience a net gain or loss in their respective water supplies under the Proposed Action since the exchange would be "bucket for bucket". AEWSD

would still have sufficient water resources to provide to their landowners for agricultural purposes and MWD would use this water to supplement their reduced SWP supplies in order to meet its customers' demand for municipal and industrial use. The Proposed Action would improve the timing in delivery of water to MWD.

The Proposed Action would not increase groundwater pumping from what has historically occurred within the Kern County Subbasin by AEWSD. In addition to adopting a groundwater management plan, AEWSD has successfully operated a conjunctive use program by which to balance its surface and groundwater supplies. Surface water imported into the district is used to recharge the groundwater through AEWSD's many spreading works if not used immediately for agricultural purposes. Groundwater pumped by the district does not exceed the amount of water that AEWSD hasn't already recharged to the underlying groundwater basin through their system of spreading works. The Proposed Action would exclude a part of the Program where AEWSD would pump banked SWP supplies for delivery back to MWD. As a result, AEWSD would pump a like-amount of water that was exchanged with MWD to satisfy their internal irrigation needs. Aside from the 10 percent loss factor left in the groundwater bank as part of the Program, there would be no net gain or loss to groundwater levels underlying AEWSD from implementing the Proposed Action. There would be no measurable changes to the groundwater basin underlying MWD since the water would be used for municipal and industrial purposes, and little, if any, water would seep into the groundwater basin. The supplemental water would be used to satisfy current customers' needs and could alleviate the region's reliance on groundwater pumping; however, groundwater pumping as part of the region's conjunctive use practice would continue as has historically occurred and would occur with or without the Proposed Action.

The CVC, CVP and SWP facilities would not be impacted as the Proposed Action must be scheduled and approved by Reclamation, KCWA and DWR. If a canal capacity prorate is required during the period this water is moving through the FKC, the prorate priority shall be pursuant to the tiers defined in Section VII of the Operational Guidelines for Water Service, Friant Division CVP, dated March 18, 2005. Additionally, the exchange must be conducted in a manner that would not harm other CVP contractors or other CVP contractual or environmental obligations, or SWP contractors. Therefore, normal obligations by the overseeing agencies to deliver water to their contractors and other obligations would not be impacted. In continuance of commitments from the Program, existing Aqueduct Pump-in Facilitation Group guidelines would followed by both AEWSD and KCWA when introducing water into the California Aqueduct to insure that water quality would not be adversely impacted.

3.2 Land Use

3.2.1 Affected Environment

Arvin-Edison Water Storage District

AEWSD includes the City of Arvin and is located in the proximity of the unincorporated communities of Edison, Lamont, Mettler, and DiGiorgio. The vast majority of farmland in the AEWSD's service area is classified as Irrigated Farmland by the California Department of Conservation (DOC 2010). The second main farmland classification in the service area is Non-irrigated Farmland.

Agriculture, in the form of row crops, orchards and vineyards, is the primary land use in the region. The Kern County General Plan designates most areas within the AEWSD service area as "intensive agriculture". Supplemental irrigation is required for these activities as the area receives an average of only 8.5 inches of rainfall per year. Other agricultural uses, while not directly dependent on irrigation for production, are also consistent with the intensive agriculture designation. The minimum parcel size is 20 acres and permitted uses include, but are not limited to, irrigated cropland, orchards, vineyards, horse ranches, beekeeping, ranch and farm facilities, and related uses. One single-family dwelling unit is permitted per 20-acre parcel (KCPD 2007).

Metropolitan Water District

The Southern California Association of Governments area comprises the bulk of MWD's service area both in terms of area and water usage. Only 10 percent of the region is urbanized. The remainder is largely uninhabited mountain and desert area, rich in natural resources.

Principal land use trends include densification of existing residential and commercial areas, urban fill on scattered pockets of vacant land, extension of urban development into hillside and mountainous terrain and suburban expansion on the perimeter of the urbanized regions with new planned developments. Such trends are operating differently in various sub regions, depending upon their respective histories, locations and socio-economic influences. City and county regional plans reflect mainly incremental changes to existing land use in coastal areas, while major expansions of the new urban development are shown for undeveloped land in outlying valleys and desert areas.

3.2.2 Environmental Consequences

3.2.2.1 No Action

Under the No Action Alternative, AEWSD would deliver banked SWP supplies in the form of pumped groundwater back to MWD as originally arranged and analyzed under the Program. Therefore, no new land use impacts associated with the No Action Alternative would occur.

3.2.2.2 Proposed Action

The Proposed Action would utilize existing facilities to convey waters involved and would not require the need to construct new facilities or modifications to existing facilities that would result in ground disturbance. The exchange would be "bucket for bucket"; therefore, AEWSD and MWD would not experience a net gain or loss in water supply. MWD would exchange an equivalent amount of banked SWP water under the Program for AEWSD's CVP supplies. The SWP water exchanged would change in ownership over to AEWSD and remain in AEWSD's groundwater bank. At a time of its choosing, AEWSD would pump the banked water and deliver it to their landowners for existing agricultural purposes. AEWSD would not experience a decrease in water supply that would impact existing irrigated farmlands within its service area, nor would the banked water be used to cultivate native or fallowed land for three or more years. MWD intends to use the exchanged CVP water to supplement its water supplies for existing municipal and industrial purposes within its service area, and would not contribute to any potential expansion within the area. Therefore, the Proposed Action would not have any impacts on existing land use.

3.3 Biological Resources

3.3.1 Affected Environment

By the mid-1940s, most of the valley's native habitat had been altered by man, and as a result, was severely degraded or destroyed. When the CVP began operations, over 30 percent of all natural habitats in the Central Valley and surrounding foothills had been converted to urban and agricultural land use (Reclamation 1999). Prior to widespread agriculture, land within the Proposed Action area provided habitat for a variety of plants and animals. With the advent of irrigated agriculture and urban development over the last 100 years, many species have become threatened and endangered because of habitat loss. Of the approximately 5.6 million acres of valley grasslands and San Joaquin saltbrush scrub, the primary natural habitats across the valley, less than 10 percent remains today. Much of the remaining habitat consists of isolated fragments supporting small, highly vulnerable populations (Reclamation 1999).

Most of the land use within the AEWSD service area is devoted to irrigated agricultural production. Because the irrigated fields are intensively managed, very little to no native vegetation exists, and little volunteer vegetation is allowed to grow. Cultivation often occurs up to the very margins of fields, roads, or ditches. Herbicides are routinely used to control unwanted vegetation which typically includes all non-crop species. Occasionally, cultivated land is allowed to lie fallow, and ruderal plant associations take over. Ruderal habitats are subject to frequent disturbance and are quickly colonized by non-native, and to a lesser extent native, plant species. Species composition varies greatly depending on the location, type, and frequency of disturbance and proximity of natural habitats. In addition to fallow agricultural fields, roadsides within the southern San Joaquin Valley area often support ruderal plant communities. Row crops and orchards provide minimal food and cover for wildlife.

Reclamation requested an official species list from USFWS via the Sacramento Field Office's website: http://www.fws.gov/sacramento/es/spp_lists/auto_list_form.cfm on August 5, 2010. The list is for the following USGS 7½ minute quadrangles that overlap AEWSD: Bear Mountain, Arvin, Weed Patch, Mettler, Tejon Hills, Coal Oil Canyon, Bena, Lamont, and Edison (document number: 100805024140). Reclamation further queried the California Natural Diversity Database (CNDDB) for records of protected species within 10 miles of the project location (CNDDB 2010). This information, in addition to other information within Reclamation's files, was compiled into Table 1.

Table 1. Federally listed species with the potential to be present within or near the Proposed Action area

Species	***Status***[1]	***Effects***[2]	***Potential to Occur in Study Area***[3]
Amphibians			
California red-legged frog (*Rana draytonii*)	T	NE	**Absent**. Suitable habitat absent. Extirpated from Action Area (USFWS 2002).
Birds			

Species	***Status[1]***	***Effects[2]***	***Potential to Occur in Study Area[3]***
Burrowing owl (*Athene cunicularia*)	P	NE	**Present.** Documented as extant within AEWSD and suitable habitat present; no conversion of native lands or lands fallowed for three years or less.
California Condor (*Gymnogyps californianus*)	E	NE	**Absent**. No CNDDB-recorded occurrences in action area. Area is not within areas designated as critical habitat.
southwestern willow flycatcher (*Empidonax traillii extimus*)	E	NE	**Absent**. No CNDDB[4]-recorded occurrences in action area. Area is not within areas designated as critical habitat.
Fish			
delta smelt (*Hypomesus transpacificus*)	T	NE	**Absent**. No natural waterways within the species' range will be affected by the proposed action. There will be no effect to Delta pumping.
Invertebrates			
valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T	NE	**Absent.** No records in area of effect. No elderberry shrubs in or within 100 feet of action footprint.
vernal pool fairy shrimp (*Branchinecta lynchi*)	T	NE	**Absent**. No records or vernal pools in area of effect.
Mammals			
Buena Vista Lake shrew (*Sorex ornatus relictus*)	E, X	NE	**Absent**. No CNDDB-recorded occurrences in action area. Area is not within areas designated as critical habitat.
giant kangaroo rat (*Dipodomys ingens*)	E	NE	**Absent**. No CNDDB-recorded occurrences in action area. Suitable habitat absent.
San Joaquin kit fox (*Vulpes macrotis mutica*)	E	NE	**Present**. CNDDB records indicate this species occurs in the project area; no conversion of native lands or lands fallowed for three years or less.
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	E	NE	**Possible**. CNDDB records from greater than ten-years agao and indicate this species occurs in the project area; no conversion of native lands or lands fallowed for three years or less.
Plants			
Bakersfield cactus (*Opuntia treleasei*)	E	NE	**Possible**. CNDDB records indicate this species recorded in 1988 from project area; no conversion of native lands or lands fallowed for three years or less.
California jewel-flower (*Caulanthus californicus*)	E	NE	**Absent**. Found in non-native annual grasslands and historically in Saltbush scrub. Report from 1986 located in Edison Quad and believed extirpated from this area (Taylor and Davilla 1986).
San Joaquin woolly-threads (*Monolopia congdonii*)	E	NE	**Possible**. No records within 10 years; species can occur in disturbed grounds and are found in non-native annual grasslands and historically in saltbush scrub.
Reptiles			

Species	***Status[1]***	***Effects[2]***	***Potential to Occur in Study Area[3]***
blunt-nosed leopard lizard (*Gambelia sila*)	E	NE	**Absent**. No CNDDB-recorded occurrences in action area. There is limited suitable habitat in the Action Area.
giant garter snake (*Thamnophis gigas*)	T	NE	**Absent**. Suitable habitat is absent from Project Area. Believed extirpated from Tulare Basin (Hanson and Brode 1980).

1 Status= Listing of Federally special status species
E: Listed as Endangered
P: Birds protected under the Migratory Bird Treaty Act
T: Listed as Threatened
X: Critical Habitat designated for this species
2 Effects = Effect determination
NE: No Effect
3 Definition Of Occurrence Indicators
Present: Species observed in area
Possible: Species no observed at least in the last 10 years
Absent: Species not observed in study area and habitat requirements not met
4 CNDDB = California Natural Diversity Database 2010

3.3.2 Environmental Consequences

3.3.2.1 No Action

Under the No Action Alternative, there would be no additional impacts to biological resources from what was analyzed under the Program since conditions would remain the same as existing conditions.

3.3.2.2 Proposed Action

Effects are similar to the No Action Alternative. Most of the habitat types required by species protected by the Endangered Species Act (ESA) do not occur in the project area. The Proposed Action would not involve the conversion of any land fallowed and untilled for three or more years. The Proposed Action also would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species or birds protected by the Migratory Bird Treaty Act (MBTA). Since no natural stream courses or additional pumping would occur, there would be no effects on listed fish species. No critical habitat occurs within the area affected by the Proposed Action and so none of the primary constituent elements of any critical habitat would be affected. There would be no impacts to biological resources.

3.4 Cultural Resources

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. The National Historic Preservation Act (NHPA) of 1966 is the primary Federal legislation that outlines the Federal Government's responsibility to cultural resources. Section 106 of the NHPA requires the Federal Government to take into consideration the effects of an undertaking on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (National Register). Those resources that are on or eligible for inclusion in the National Register are referred to as historic properties.

The Section 106 process is outlined in the Federal regulations at 36 Code of Federal Regulations (CFR) Part 800. These regulations describe the process that the Federal agency (Reclamation) takes to identify cultural resources and the level of effect that the proposed undertaking would have on historic properties. In summary, Reclamation must first determine if the action is the type of action that has the potential to affect historic properties. If the action is the type of action to affect historic properties, Reclamation must identify the area of potential effects (APE), determine if historic properties are present within that APE, determine the effect that the undertaking will have on historic properties, and consult with the State Historic Preservation Office (SHPO), to seek concurrence on Reclamation's findings. In addition, Reclamation is required through the Section 106 process to consult with Indian Tribes concerning the identification of sites of religious or cultural significance, and consult with individuals or groups who are entitled to be consulting parties or have requested to be consulting parties. Reclamation uses the Section 106 process to identify and consider impacts to cultural resources that may be affected by actions outlined in this EA.

3.4.1 Affected Environment

The San Joaquin Valley is rich in historical and prehistoric cultural resources. Cultural resources in this area are generally prehistoric in nature and include remnants of native human populations that existed before European settlement. Prior to the 18th Century, many Native American tribes inhabited the Central Valley. It is possible that many cultural resources lie undiscovered across the valley. The San Joaquin Valley supported extensive populations of Native Americans, principally the Northern Valley Yokuts, in the prehistoric period. Cultural studies in the San Joaquin Valley have been limited. The conversion of land and intensive farming practices over the last century has probably disturbed many Native American cultural sites.

Resources within the scope of this project include historic features of the built environment primarily those of the CVP and SWP. Components of the CVP have been determined eligible for inclusion in the National Register and have been prepared for inclusion in the National Register through a multiple property nomination. The CVP multiple property nomination is currently being reviewed for submission to the Keeper of the National Register for inclusion in the National Register.

Friant Dam is located on the San Joaquin River, northeast of Fresno, California. Completed in 1942, the dam is a concrete gravity structure, 319 feet high, with a crest length of 3,488 feet. Construction of the canal began in 1945 and was completed in 1951. Both Friant Dam and the FKC are considered contributing elements of the CVP multiple property listing and are considered eligible for inclusion in the National Register. The San Luis Unit is a joint Federal and State project. The Federal components of the San Luis Unit include O'Neil Pumping Plant and Intake Canal, Coalinga Canal, Pleasant Valley Pumping Plant, and the San Luis Drain. The features of the San Luis Unit are not considered contributing features of the CVP's National Register status. Additionally, the features of the San Luis Unit were all completed in the late 1960's and are not yet eligible for inclusion in the National Register.

3.4.2 Environmental Consequences

3.4.2.1 No Action

Under the No Action Alternative, there would be no Federal undertaking as described in the NHPA at Section 301(7). As a result, Reclamation would not be obligated to implement Section

106 of that NHPA and its implementing regulations at 36 CFR Part 800. Because there is no undertaking, impacts to cultural resources would not be evaluated through the Section 106 process. All operations would remain the same, resulting in no impacts to cultural resources.

3.4.2.2 Proposed Action

The Proposed Action to exchange water as described in the Section 2.2 of this EA constitutes an undertaking as pursuant to Section 301(7) of the NHPA, initiating Section 106 of the NHPA and its implementing regulations at 36 CFR Part 800. All exchanges would occur through existing facilities and water would be provided within existing service area boundaries to areas that currently use water. The Proposed Action would not result in modification of any existing facilities, construction of new facilities, change in land use, or growth. Because the Proposed Action would result in no physical alterations of existing facilities and no ground disturbance as stipulated in Section 2.2 of this EA, Reclamation concludes that the Proposed Action has no potential to cause effect to historic properties pursuant to the regulations at 36 CFR Part 800.3(a)(1), and would result in no impacts to cultural resources (refer to Appendix A for cultural resources determination).

3.5 Indian Trust Assets

ITA are legal interests in assets that are held in trust by the U.S. Government for federally recognized Indian tribes or individuals. The trust relationship usually stems from a treaty, executive order, or act of Congress. The Secretary of the Interior is the trustee for the United States on behalf of federally recognized Indian tribes. "Assets" are anything owned that holds monetary value. "Legal interests" means there is a property interest for which there is a legal remedy, such a compensation or injunction, if there is improper interference. ITA cannot be sold, leased or otherwise alienated without the United States' approval. Assets can be real property, physical assets, or intangible property rights, such as a lease, or right to use something; which may include lands, minerals and natural resources in addition to hunting, fishing, and water rights. Indian reservations, rancherias, and public domain allotments are examples of lands that are often considered trust assets. In some cases, ITA may be located off trust land.

Reclamation shares the Indian trust responsibility with all other agencies of the Executive Branch to protect and maintain ITA reserved by or granted to Indian tribes, or Indian individuals by treaty, statute, or Executive Order.

3.5.1 Affected Environment

The nearest ITA is a Public Domain Allotment approximately 38 miles East of the Proposed Action location.

3.5.2 Environmental Consequences

3.5.2.1 No Action

Under the No Action Alternative, Reclamation would not approve the exchange and conditions would remain the same as existing conditions; therefore, there would be no impacts to ITA.

3.5.2.2 Proposed Action

Approval of the exchange between AEWSD and MWD would not involve any construction on lands or impact water, hunting, and fishing rights associated with the nearest ITA listed in the affected environment. Therefore, the Proposed Action does not have a potential to affect ITA (refer to Appendix A for ITA determination).

3.6 Socioeconomic Resources

3.6.1 Affected Environment

The agricultural industry significantly contributes to the overall economic stability of the San Joaquin Valley. The CVP allocations each year allow farmers to plan for the types of crops to grow and to secure loans to purchase supplies. Depending upon the variable hydrological and economical conditions, water transfers and exchanges could be prompted. The economic variances may include fluctuating agricultural prices, insect infestation, changing hydrologic conditions, increased fuel and power costs.

MWD would still receive water supplies to supplement their current SWP supplies under the No Action Alternative or the Proposed Action. As a result, MWD would not incur any impacts to its socioeconomic resources and is not discussed further in Section 3.6.2 below.

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the No Action Alternative, the exchange would not affect agricultural production within AEWSD; therefore, the socioeconomic conditions within AEWSD would remain the same as existing conditions.

3.6.2.2 Proposed Action

The Proposed Action would result in less energy use with virtually no changes in flow path from what was analyzed under the Program. This would save AEWSD the energy and costs associated with otherwise pumping and returning groundwater. If AEWSD is also directly recharging water to their groundwater at this time on their own behalf, it would also save AEWSD the expenses associated with operating their recharge basins. Agricultural practices within AEWSD would be within historical conditions and would not be adversely impacted by the implementing the Proposed Action.

3.7 Environmental Justice

3.7.1 Affected Environment

The February 11, 1994, Executive Order 12898 requires federal agencies to ensure that their actions do not disproportionately impact minority and disadvantaged populations. The market for seasonal workers on local farms draws thousands of migrant workers, commonly of Hispanic origin from Mexico and Central America, into the San Joaquin Valley. Agriculture and related businesses are the main industry within AEWSD, which provides employment opportunities for these minority and/or disadvantaged populations.

MWD would still receive water supplies to supplement their current SWP supplies under the No Action Alternative or the Proposed Action. As a result, disproportional impacts to minority and disadvantaged populations would not occur within MWD, and is not discussed further in Section 3.7.2 below.

3.7.2 Environmental Consequences

3.7.2.1 No Action

The No Action Alternative would not result in harm to minority or disadvantaged populations within the vicinity of AEWSD since the district would not experience a net gain or loss in water supply that would otherwise be used to irrigate farmlands which these populations depend upon for employment opportunities.

3.7.2.2 Proposed Action

Similar to the No Action Alternative, the Proposed Action would not cause dislocation, changes in employment, or increase flood, drought, or disease within the affected environment. The Proposed Action would not disproportionately impact economically disadvantaged or minority populations. The exchange is intended to allow the expeditious water delivery of surface water supplies available to AEWSD in lieu of groundwater it otherwise would have extracted and delivered to MWD in fulfilling its return water obligations to MWD under their Program of water banking this year and potentially next year. Water so delivered would primarily serve to reduce energy use with attendant cost savings and would also allow AEWSD to increase their groundwater banking account to meet current and future summertime peaking demands, therefore securing agricultural jobs in the region.

3.8 Global Climate

3.8.1 Affected Environment

Climate change refers to significant change in measures of climate that last for decades or longer. Burning of fossil fuels is considered a major contributor to perceived global climate change. Carbon dioxide, which is produced when fossil fuels are burned, is a greenhouse gas (GHG) that effectively traps heat in the lower atmosphere. Some carbon dioxide is liberated naturally, but this may be augmented greatly through human activities. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations. While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

The No Action Alternative would involve no change to the composition of GHG in the atmosphere and therefore would not contribute to global climate change.

3.8.2.2 Proposed Action

GHG generated by the Proposed Action is expected to be extremely small compared to sources contributing to potential climate change since the exchange of water would be conveyed mostly via gravity and little, if any, additional pumping from electric motors would be required. While

any increase in GHG emissions would add to the global inventory of gases that would contribute to global climate change, the Proposed Action would result in potentially minimal to no increases in GHG emissions and a net increase in GHG emissions among the pool of GHG would not be detectable.

3.9 Cumulative Impacts

Much like the EA that was completed in 2009 which analyzed a similar action, the Proposed Action is an extension of the Program between AEWSD and MWD. Both the 2009 EA and the Proposed Action are/were temporary actions, which allowed AEWSD to provide for the timely delivery of surface water to MWD in order to fulfill its obligation under the Program in-lieu of pumping and returning groundwater to MWD. Since the Proposed Action and the 2009 EA are extensions of the Program, the Program could then be used to determine potential cumulative impacts. The Program itself is a long-term action that was determined to not have adverse impacts on environmental resources.

There would be no net gain or loss to either district's water supplies since the exchange would be "bucket for bucket". Groundwater pumping would not increase or decrease as a result of the Proposed Action. The Program slightly benefits the groundwater levels underlying AEWSD since 10 percent of MWD's SWP supplies banked are left in the groundwater subbasin. Utilization of conveyance facilities involved would require coordination with the appropriate overseeing agency to insure that the scheduling of the Proposed Action would not hinder the normal operations of those facilities. The same water quality monitoring protocols would be followed in continuance of the Program to ensure that water quality in the California Aqueduct is not adversely impacted.

The Proposed Action would have no impact on land use, biological resources, cultural resources, ITA, and environmental justice; therefore, would not contribute to cumulative impacts on these resources areas. Slight beneficial impacts to socioeconomics would be short-term and within the historical variations, and therefore would not contribute to cumulative impacts. GHG impacts are considered to be cumulative impacts. The Proposed Action, when added to other existing and future actions, would not contribute to cumulative impacts to global climate change owing to the EPA threshold (25,000 tons/year) magnitude of GHG emissions requirement for reporting (EPA 2009).

The proposed exchange would only occur within the timeframe specified for the consolidation for the CVP and SWP places-of-use and is not precedent setting. The Proposed Action, when added to other actions, do not contribute to adverse increases or decreases in environmental conditions. Overall, there would be no adverse cumulative impacts caused by the Proposed Action.

Section 4 Consultation and Coordination

4.1 Public Review Period

Reclamation provided the public with an opportunity to comment on the Draft FONSI and Draft EA during a 15-day comment period from August 12 through August 26, 2010. No comments were received.

4.2 Fish and Wildlife Coordination Act (16 USC § 661 et seq.)

The Fish and Wildlife Coordination Act (FWCA) requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. The Proposed Action does not involve federal water development projects; therefore, the FWCA does not apply.

4.3 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the ESA requires Federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species.

The Proposed Action would not change the land use patterns of the cultivated or fallowed fields that do have some value to listed species. In addition, the short duration of the water availability, the requirement that no native lands be converted without consultation with the USFWS, and the stringent requirements for transfers under applicable laws would prevent any adverse impact to any federally listed species or any critical habitat. Therefore, consultation with the USFWS is not required.

On August 23, 2010, Reclamation sent a memorandum to notify the USFWS of the Proposed Action per the requirements of the Biological Opinion on U.S. Bureau of Reclamation Long-Term Contract Renewal of Friant Division and Cross Valley Unit Contracts (File Number 1-1-01-F-0027). Reclamation made the determination that the Proposed Action would have no effect on any Federally listed or proposed species, or any critical habitat and did not request concurrence from the USFWS (refer to Appendix B for letter memorandum).

4.4 National Historic Preservation Act (16 USC § 470 et seq.)

The NHPA of 1966, as amended (16 USC 470 *et seq*), requires that federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historic properties, properties that are eligible for inclusion in the NRHP. The 36 CFR Part 800 regulations implement Section 106 of the NHPA.

Section 106 of the NHPA requires federal agencies to consider the effects of federal undertakings on historic properties, properties determined eligible for inclusion in the NRHP. Compliance with Section 106 follows a series of steps that are designed to identify interested

parties, determine the APE, conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties. The activities associated with the Proposed Action would include no new ground disturbance, no change in land use, and the use of existing conveyance features to move water. Reclamation has determined that there would be no potential to affect historic properties by the Proposed Action pursuant to 36 CFR 800.3(a)(1), and consultation with the SHPO is not required (see Appendix A for determination).

Reclamation (Bureau of Reclamation). 1999. Final Programmatic Environmental Impact Statement for the Implementation of the CVPIA. October 1999.

Reclamation (Bureau of Reclamation). 2009. Arvin-Edison Water Storage District / Metropolitan Water District 2009-2010 Water Exchange Program Final Environmental Assessment and Finding of No Significant Impact. Updated December 2009.

Reclamation (Bureau of Reclamation). 2009a. San Joaquin River Restoration Program Water Year 2010 Interim Flows Project Final Environmental Assessment/Initial Study and Finding of No Significant Impact/Mitigated Negative Declaration. September 9, 2009.

Reclamation (Bureau of Reclamation). 2010. Bureau of Reclamation website: http://www.usbr.gov/projects/Project.jsp?proj_Name=Friant%20Division%20Project. Accessed: July, 2010.

Reclamation (Bureau of Reclamation). 2010a. Recirculation of Recaptured Water Year 2010 San Joaquin River Restoration Program Interim Flows Final Environmental Assessment and Finding of No Significant Impact. July 22, 2010.

Taylor, D. W., and W. B. Davilla. 1986. Status survey of three plants endemic to the San Joaquin Valley and adjacent areas, California. U.S. Fish and Wildlife Service, Sacramento, CA, 131 pp.

USFWS (U.S. Fish and Wildlife Service). 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

Appendix A – ITA and Cultural Resources Determinations

Inthavong, Michael T

To: Inthavong, Michael T
Subject: FW: ITA Request Form Review (EA-10-38)

From: Rivera, Patricia L
Sent: Tuesday, August 24, 2010 1:38 PM
To: Inthavong, Michael T
Subject: RE: ITA Request Form Review (EA-10-38)

Michael,

I reviewed the proposed action to approve Arvin-Edison Water Storage District's(AEWSD) request to exchange a portion of its CVP water supply for a like-amount of Metropolitan Water District's (MWD) State Water Project (SWP) supply. More specifically, AEWSD would exchange up to 40,000 AF total of its 2010 and/or 2011 Friant Division CVP Class 1, Class 2, and/or 215 Water supplies (to the extent Class 2 and 215 Water is declared by Reclamation and is allocated to AEWSD) from Millerton Lake for a like-amount of MWD's SWP supply already stored with AEWSD's groundwater bank (the exchange would be "bucket-for-bucket"). Also, AEWSD's portion of recaptured water stored in San Luis Reservoir (SLR) as a result of San Joaquin River Restoration Program interim flows projects could be used to complete the exchange for MWD's SWP supply in place of/addition to AEWSD's CVP water from Millerton Lake.

The proposed action does not have a potential to affect Indian Trust Assets. The nearest ITA is a Public Domain Allotment approximately 38 miles East of the project location.

Patricia

Inthavong, Michael T

From: Nickels, Adam M
Sent: Tuesday, August 10, 2010 1:36 PM
To: Inthavong, Michael T; Perry, Laureen (Laurie) M
Cc: Ramsey, Dawn; Overly, Stephen A; Barnes, Amy J; Bruce, Brandee E; Goodsell, Joanne E; Healer, Rain L; Dunay, Amy L; Fogerty, John A
Subject: RE: CR Review EA-10-38
Attachments: CR Edits to Draft_EA-10-38_AEWSDandMWD_UpdatedwithIndianSacredSites.doc

Project No. 10-SCAO-277

Dear Michael:

I have reviewed the Environmental Assessment 10-38 titled, *"Arvin-Edison Water Storage District and Metropolitan Water District 2010-2011 Water Exchange Project."* I have made some edits to the draft document and request that these comments be incorporated into the final EA for public review (see attached). Based on my review of the EA, I have determined that the proposed action has no potential to cause affects to historic properties assuming historic properties are present pursuant to the regulations at 36 CFR Part 800.3(a)(1).

As defined in Section 2.2 of the EA, the proposed action will involve the transfer of CVP water to supplement water supplies to Metropolitan Water District. This transfer will occur through existing facilities and will not require the modification of existing facilities nor actions resulting in ground disturbance or earth movement to facilitate the transfer. There will be no impacts to cultural resources as a result of this transfer.

This email is intended to conclude the Section 106 process. Please retain a copy of this conclusion memo with the administrative record of this EA. If there are any substantial changes to the EA, please provide an opportunity for the cultural resources staff to review and assess impacts to cultural resources.

Sincerely,

Adam M. Nickels - Archaeologist - M.S.
Phone: 916.978.5053 - Fax: 916978.5055 - www.usbr.gov

RECLAMATION -Mid-Pacific Regional Office MP-153 2800 Cottage Way - Sacramento, California 95825

From: Inthavong, Michael T
Sent: Thursday, July 29, 2010 10:26 AM
To: Perry, Laureen (Laurie) M
Cc: Ramsey, Dawn; Overly, Stephen A; Barnes, Amy J; Bruce, Brandee E; Goodsell, Joanne E; Nickels, Adam M
Subject: CR Review EA-10-38

Hi Laurie,
Please assign this project to one of your team members for review. This project involves Arvin-Edison Water Storage District (AEWSD) exchanging their CVP supplies, including potential recaptured water stored in San Luis Reservoir from the interim flows, with Metropolitan Water District (of Southern California) for a like-amount of SWP currently banked within AEWSD's groundwater bank. Similar to a project we approved last year (EA-09-97), and just like last year's

project, the Proposed Action is contingent upon successful petition and approval to consolidate CVP and SWP places-of-use. Existing facilities would be used to convey the water.

CA#: A1R-1752-9652-220-03-8-1

Let me know if you need anything else.

Thanks,
Michael I

Appendix B – USFWS Letter Memorandum

United States Department of the Interior

BUREAU OF RECLAMATION
South-Central California Area Office
1243 N Street
Fresno, California 93721-1813

IN REPLY REFER TO:

SCC-422
ENV-7.00
Friant Division

AUG 23 2010

MEMORANDUM

To: Field Supervisor, U.S. Fish and Wildlife Service, Sacramento, CA
Attn: Dan Russell

David E. Hyatt

From: David Hyatt
Supervisory Wildlife Biologist

Subject: Arvin-Edison Water Storage District (AEWSD)/Metropolitan Water District (MWD) 2010-2011 Water Exchange Project

The Bureau of Reclamation hereby notifies the U.S. Fish and Wildlife Service that Reclamation has determined that a proposed action of approving an exchange of AEWSD's Central Valley Project (CVP) water with MWD's stored water of up to 40,000 acre-feet (AF), will have no effect on any Federally listed or proposed species or any critical habitat.

Reclamation is not requesting concurrence with this determination, but is notifying the Service per the requirements of the Biological Opinion on U.S. Bureau of Reclamation Long Term Contract Renewal of Friant Division and Cross Valley Unit Contracts (File Number 1-1-01-F-0027). This proposed action is a 1:1 (bucket-for-bucket) exchange. No new facilities will be constructed as part of the proposed action. No physical change will occur within MWD as a result of the proposed action, but the aquifer within AEWSD will benefit. No native lands or lands fallowed and untilled for three or more years will receive the exchanged water.

AEWSD would allow up to 40,000 AF total of its varied Friant Division CVP supplies (Class 1, Class 2, 215 Water, and/or recaptured interim flows) to be delivered to MWD. The CVP water would then be transported through AEWSD conveyance facilities to a point of introduction into the California Aqueduct at the AEWSD California Aqueduct Turnout/Turnin while AEWSD would take possession of previously banked MWD State Water Project (SWP) water. By virtue of the opportunity presented by the temporary consolidation of the SWP and CVP places of use, and importantly, including the CVP Friant Division permits in this consolidation, AEWSD can directly deliver some of its Friant Division CVP contract supplies to MWD instead of returning dry year payback obligations to MWD.

If you have any questions, please contact Jennifer Lewis, Wildlife Biologist, at 559-487-5197 or for the hearing impaired 800-735-2929. Ms. Lewis' electronic mail address is jllewis@usbr.gov.

cc: Mr. Doug McPherson
Bureau of Reclamation
Southern California Area Office
27708 Jefferson Avenue, Suite 202
Temecula, CA 92590-2641

Ms. Karen Goebel
U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Suite 101
Carlsbad, CA 92011-4219

Mr. Mike Welsh
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1888

Mr. Roger Root
U.S. Fish and Wildlife Service
2493 Portola Rd., Suite B
Ventura, CA 93303-6474

bc: SCC-416 (MInthavong), SCC-414 (RBallew), SCC-420 (DHyatt), SCC-425 (MYow)

WBR:JLewis:TDishion:8/20/2010 2:00 PM:559-487-5197
V:RMD\New Letter Request\jllewis\AEWSD and MWD Exchange MOU Service

Appendix C – Program Delivery/Return Schedule

ARVIN-EDISON / METROPOLITAN WATER MANAGEMENT PROGRAM

SUMMARY OF WATER DELIVERIES - AF

Water Year	Month	SWP Water Delivered to AE				Regulated Water	Returned to MWD	Program Balance	
		CVC		Intertie	Total				
		Tupman	To AE	Pipeline	Monthly			Monthly	Accum.
1997	Dec	1,486	1,480	0	1,480	1,332	0	1,332	1,332
	Jan	10,973	10,933	0	10,933	9,840	0	9,840	11,172
	Feb	336	331	0	331	298	0	298	11,470
1998	Mar	0	0	0	0	0	0	0	11,470
	Apr	0	0	0	0	0	0	0	11,470
	May	0	0	0	0	0	0	0	11,470
	Jun	0	0	0	0	0	0	0	11,470
	Jul	0	0	0	0	0	0	0	11,470
	Aug	759	738	0	738	664	0	664	12,134
	Sep	7,019	6,829	0	6,829	6,146	0	6,146	18,280
	Oct	6,612	6,541	0	6,541	5,887	0	5,887	24,167
	Nov	4,035	4,035	0	4,035	3,632	0	3,632	27,798
	Dec	0	0	0	0	0	0	0	27,798
	Jan	0	0	0	0	0	0	0	27,798
	Feb	0	0	0	0	0	0	0	27,798
1999	Mar	8,041	7,950	0	7,950	7,155	0	7,155	34,953
	Apr	15,916	15,838	0	15,838	14,254	0	14,254	49,208
	May	21,579	21,527	0	21,527	19,374	0	19,374	68,582
	Jun	19,319	19,276	0	19,276	17,348	0	17,348	85,930
	Jul	10,697	10,697	0	10,697	9,627	0	9,627	95,558
	Aug	7,854	7,854	0	7,854	7,069	0	7,069	102,626
	Sep	2,958	2,947	0	2,947	2,652	0	2,652	105,278
	Oct	137	137	0	137	123	0	123	105,402
	Nov	4,292	4,267	0	4,267	3,840	0	3,840	109,242
	Dec	4,369	4,297	0	4,297	3,867	0	3,867	113,109
	Jan	12,049	11,985	0	11,985	10,787	0	10,787	123,896
	Feb	4,475	4,452	0	4,452	4,007	0	4,007	127,903
2000	Mar	0	0	0	0	0	0	0	127,903
	Apr	10,801	10,719	0	10,719	9,647	0	9,647	137,550
	May	0	0	0	0	0	0	0	137,550
	Jun	21,130	20,930	0	20,930	18,837	0	18,837	156,387
	Jul	24,803	24,686	0	24,686	22,217	0	22,217	178,604
	Aug	16,675	16,587	0	16,587	14,928	0	14,928	193,532
	Sep	17,166	17,075	0	17,075	15,368	0	15,368	208,900
	Oct	21,119	21,015	0	21,015	18,914	0	18,914	227,813
	Nov	15,752	15,661	0	15,661	14,095	0	14,095	241,908
	Dec	5,761	5,716	0	5,716	5,144	0	5,144	247,053
	Jan	0	0	0	0	0	0	0	247,053
	Feb	0	0	0	0	0	0	0	247,053

ARVIN-EDISON / METROPOLITAN WATER MANAGEMENT PROGRAM

SUMMARY OF WATER DELIVERIES - AF

Water Year	Month	SWP Water Delivered to AE				Regulated Water	Returned to MWD	Program Balance	
		CVC		Intertie	Total				
		Tupman	To AE	Pipeline	Monthly			Monthly	Accum.
2001	Mar	0	0	0	0	0	0	0	247,053
	Apr	0	0	0	0	0	0	0	247,053
	May	0	0	0	0	0	0	0	247,053
	Jun	0	0	0	0	0	0	0	247,053
	Jul	0	0	0	0	0	0	0	247,053
	Aug	0	0	0	0	0	0	0	247,053
	Sep	0	0	0	0	0	5,000	-5,000	242,053
	Oct	0	0	0	0	0	5,800	-5,800	236,253
	Nov	0	0	0	0	0	5,000	-5,000	231,253
	Dec	0	0	0	0	0	5,000	-5,000	226,253
	Jan	0	0	0	0	0	0	0	226,253
	Feb	0	0	0	0	0	0	0	226,253
2002	Mar	0	0	0	0	0	0	0	226,253
	Apr	0	0	0	0	0	0	0	226,253
	May	0	0	0	0	0	0	0	226,253
	Jun	0	0	0	0	0	0	0	226,253
	Jul	0	0	0	0	0	0	0	226,253
	Aug	0	0	0	0	0	0	0	226,253
	Sep	0	0	0	0	0	0	0	226,253
	Oct	0	0	0	0	0	0	0	226,253
	Nov	0	0	0	0	0	0	0	226,253
	Dec	0	0	0	0	0	0	0	226,253
	Jan	0	0	0	0	0	5,795	-5,795	220,458
	Feb	0	0	0	0	0	5,688	-5,688	214,770
2003	Mar	0	0	0	0	0	897	-897	213,873
	Apr	0	0	0	0	0	0	0	213,873
	May	4,727	4,722	750	5,472	4,925	0	4,925	218,798
	Jun	11,255	11,199	2,735	13,934	12,541	0	12,541	231,338
	Jul	8,038	8,000	3,761	11,761	10,585	0	10,585	241,923
	Aug	0	0	1,900	1,900	1,710	0	1,710	243,633
	Sep	0	0	1,400	1,400	1,260	0	1,260	244,893
	Oct	0	0	1,520	1,520	1,368	0	1,368	246,261
	Nov	0	0	675	675	608	0	608	246,869
	Dec	3,700	3,677	170	3,847	3,462	0	3,462	250,331
	Jan	0	0	0	0	0	0	0	250,331
	Feb	0	0	0	0	0	0	0	250,331

ARVIN-EDISON / METROPOLITAN WATER MANAGEMENT PROGRAM

SUMMARY OF WATER DELIVERIES - AF

Water Year	Month	SWP Water Delivered to AE				Regulated Water	Returned to MWD	Program Balance	
		CVC		Intertie Pipeline	Total Monthly			Monthly	Accum.
		Tupman	To AE						
2004	Mar	0	0	0	0	0	0	0	250,331
	Apr	0	0	0	0	0	0	0	250,331
	May	0	0	0	0	0	0	0	250,331
	Jun	0	0	0	0	0	1,664	-1,664	248,667
	Jul	0	0	0	0	0	1,982	-1,982	246,685
	Aug	0	0	0	0	0	2,829	-2,829	243,856
	Sep	0	0	0	0	0	11,630	-11,630	232,226
	Oct	0	0	0	0	0	13,625	-13,625	218,601
	Nov	0	0	0	0	0	6,858	-6,858	211,743
	Dec	0	0	0	0	0	4,689	-4,689	207,054
	Jan	0	0	0	0	0	0	0	207,054
	Feb	0	0	0	0	0	0	0	207,054
2005	Mar	0	0	0	0	0	0	0	207,054
	Apr	0	0	0	0	0	0	0	207,054
	May	0	0	0	0	0	0	0	207,054
	Jun	0	0	0	0	0	0	0	207,054
	Jul	0	0	0	0	0	0	0	207,054
	Aug	0	0	0	0	0	0	0	207,054
	Sep	0	0	0	0	0	0	0	207,054
	Oct	0	0	0	0	0	0	0	207,054
	Nov	0	0	0	0	0	0	0	207,054
	Dec	0	0	0	0	0	0	0	207,054
	Jan	0	0	0	0	0	0	0	207,054
	Feb	0	0	0	0	0	0	0	207,054
2006	Mar	0	0	0	0	0	0	0	207,054
	Apr	0	0	0	0	0	0	0	207,054
	May	0	0	0	0	0	0	0	207,054
	Jun	0	0	0	0	0	0	0	207,054
	Jul	0	0	0	0	0	0	0	207,054
	Aug	0	0	1,259	1,259	1,133	0	1,133	208,187
	Sep	0	0	1,940	1,940	1,746	0	1,746	209,933
	Oct	0	0	946	946	851	0	851	210,784
	Nov	0	0	883	883	795	0	795	211,579
	Dec	0	0	412	412	371	0	371	211,950
	Jan	0	0	745	745	671	0	671	212,620
	Feb	0	0	1,136	1,136	1,022	0	1,022	213,643

ARVIN-EDISON / METROPOLITAN WATER MANAGEMENT PROGRAM

SUMMARY OF WATER DELIVERIES - AF

Water Year	Month	SWP Water Delivered to AE				Regulated Water	Returned to MWD	Program Balance	
		CVC		Intertie	Total				
		Tupman	To AE	Pipeline	Monthly			Monthly	Accum.
2007	Mar	0	0	0	0	0	2,540	-2,540	211,103
	Apr	0	0	0	0	0	1,254	-1,254	209,849
	May	0	0	0	0	0	598	-598	209,251
	Jun	0	0	0	0	0	485	-485	208,766
	Jul	0	0	0	0	0	500	-500	208,266
	Aug	0	0	0	0	0	701	-701	207,565
	Sep	0	0	0	0	0	1,531	-1,531	206,034
	Oct	0	0	0	0	0	5,092	-5,092	200,942
	Nov	0	0	0	0	0	5,893	-5,893	195,049
	Dec	0	0	0	0	0	5,631	-5,631	189,418
	Jan	0	0	0	0	0	8,715	-8,715	180,703
	Feb	0	0	0	0	0	5,758	-5,758	174,945
2008	Mar	0	0	0	0	0	4,710	-4,710	170,235
	Apr	0	0	0	0	0	1,054	-1,054	169,181
	May	0	0	0	0	0	604	-604	168,577
	Jun	0	0	0	0	0	783	-783	167,794
	Jul	0	0	0	0	0	979	-979	166,815
	Aug	0	0	0	0	0	1,577	-1,577	165,238
	Sep	0	0	0	0	0	1,819	-1,819	163,419
	Oct	0	0	0	0	0	3,102	-3,102	160,317
	Nov	0	0	0	0	0	5,956	-5,956	154,361
	Dec	0	0	0	0	0	2,545	-2,545	151,816
	Jan	0	0	0	0	0	9,331	-9,331	142,485
	Feb	0	0	0	0	0	7,869	-7,869	134,616
2009	Mar	0	0	0	0	0	3,528	-3,528	131,088
	Apr	0	0	0	0	0	0	0	131,088
	May	0	0	0	0	0	0	0	131,088
	Jun	0	0	0	0	0	1,771	-1,771	129,317
	Jul	0	0	0	0	0	83	-83	129,234
	Aug	0	0	0	0	0	327	-327	128,907
	Sep	0	0	0	0	0	8,568	-8,568	120,339
	Oct	0	0	0	0	0	8,858	-8,858	111,481
	Nov	0	0	0	0	0	10,625	-10,625	100,856
	Dec	0	0	0	0	0	5,488	-5,488	95,368
	Jan	0	0	0	0	0	17,868	-17,868	77,500
	Feb	0	0	0	0	0	24,088	-24,088	53,412
2010	Mar	0	0	0	0	0	0	0	53,412
	Apr	0	0	0	0	0	13,717	-13,717	39,695
	May	0	0	0	0	0		0	39,695
	Jun	0	0	0	0	0		0	39,695
	Jul	0	0	0	0	0		0	39,695
	Aug	0	0	0	0	0		0	39,695
	Sep	0	0	0	0	0		0	39,695

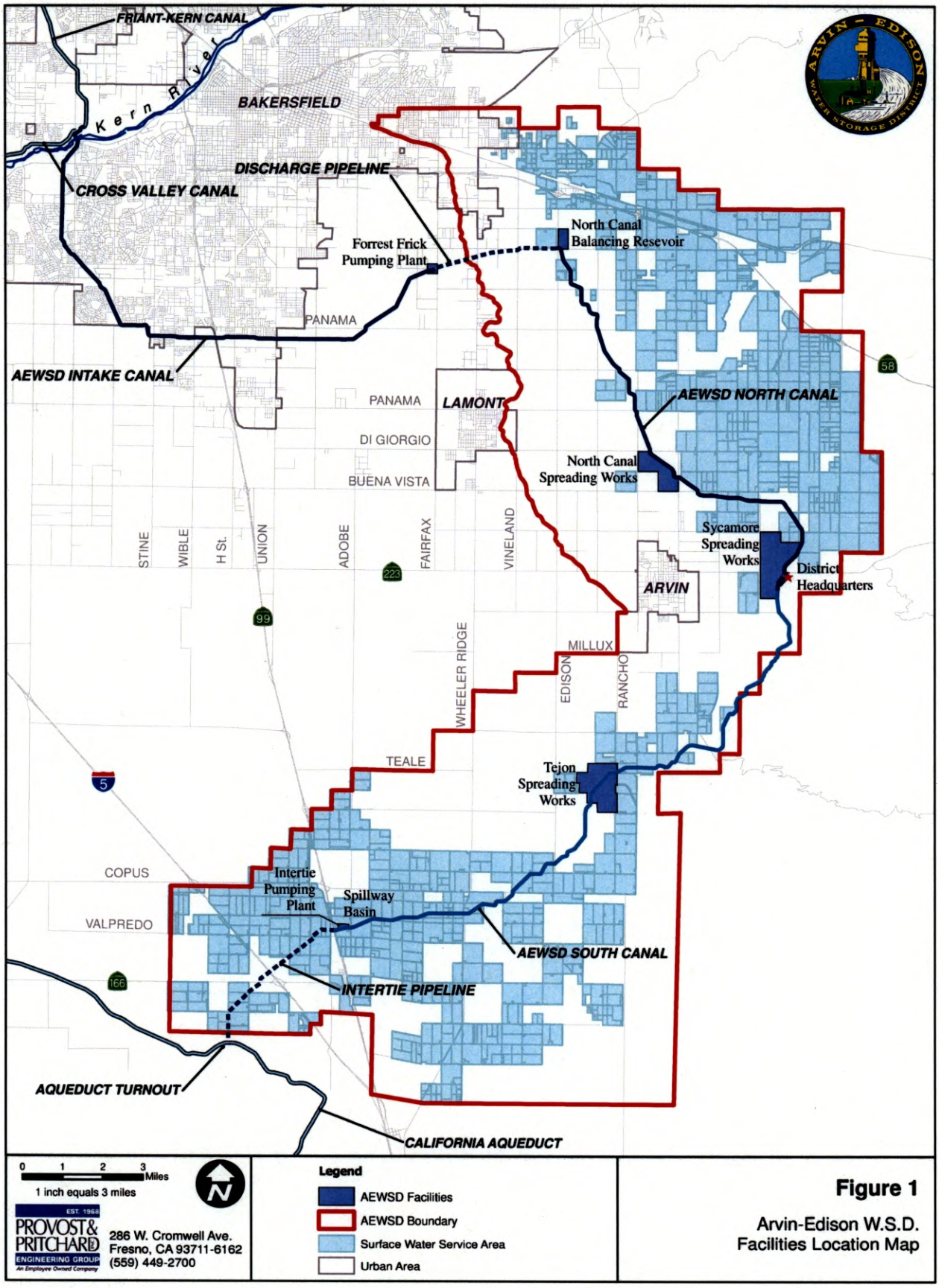
ARVIN-EDISON / METROPOLITAN WATER MANAGEMENT PROGRAM

SUMMARY OF WATER DELIVERIES - AF

Water Year	Month	SWP Water Delivered to AE				Regulated Water	Returned to MWD	Program Balance	
		CVC		Intertie Pipeline	Total Monthly			Monthly	Accum.
		Tupman	To AE						
	Oct	0	0	0	0	0		0	39,695
	Nov	0	0	0	0	0		0	39,695
	Dec	0	0	0	0	0		0	39,695
	Jan	0	0	0	0	0		0	39,695
	Feb	0	0	0	0	0		0	39,695
Total		303,833	302,101	20,232	322,333	290,100	250,405	39,695	

MWD water-2.xls

Appendix D – AEWSD Map and Distribution System



PROVOST & PRITCHARD ENGINEERING GROUP
286 W. Cromwell Ave.
Fresno, CA 93711-6162
(559) 449-2700

Figure 1

Arvin-Edison W.S.D.
Facilities Location Map